# Template: Proposal for an Africa RISING R4D Scaling Partnership

## Background and Justification

*Describe the nature of the innovations to be scaled*

Enset based farming system is the backbone of Ethiopian economy particularly in the Southern and South-western part of the country. The crop is highly drought tolerant and resilient to various environmental shocks being an ideal crop for food security, in Ethiopian highlands, where population density is highest (up to 300 per square kilometer).

According to some research findings, farmers’ average land holding is found to be 0.86 hectare. Enset, Wheat (durum), food barley, Irish potato, faba bean and Field pea are among the major crops cultivated by smallholder farmers with different degree of combination. Enset represented about 22.7 hectare of the total land holding that is by far greater than other competing enterprises in the Southern and South-western part of Ethiopia.

Despite such importance of the crop, enset production in Ethiopia has received little attention from research and development. As a result, enset production, processing and utilization have been constrained by a host of problems along the value chain. Of all constraints, bacterial wilt disease is the most economically important, putting the sustainability of enset farming systems in jeopardy. It is reported that up to 80% of enset farms are currently infected. Enset production is declining from time time due to the bacterial wilt. This problem directly affects the livelihood of more than 20 million enset growing farmers in the country.

## Benefits

*What benefits are anticipated from the widespread uptake of these innovations?*

Enset is an indigenous, little researched **staple food crop known for its tolerance to transient drought, high productivity, gender equity and environmental sustainability**. It is a multi-purpose plant with a range of utilities including **food, feed, construction and medicinal uses**. Bulla and Kocho, fermented starch resulting from pulverized pseudostem and corm, is the primary product which is often baked into bread. Enset fiber is the main byproduct resulting from decortications of the pulp from leaf sheathes of the pseudo stem.

Enset also plays an important role as a feed for animals during dry spell. Fresh enset leaves are selectively cut from the standing crop and fed to livestock during feed shortages. Leaves for livestock feed can also be obtained as byproducts during the entire enset plant harvest (corm and pseudo stem processing and fermentation into starch food). Among all other agricultural enterprises, enset farming systems support the largest human population density in Ethiopia, which in some areas such as Gedeo, Kambata Tambaro, Walyita, Gurage, Sidama, Hadiya, south-west Ethiopian Highlands.

## Research Questions

*Specify the research questions that will backstop the partnership. It is accepted that these might evolve over the lifespan of the partnership.*

1. What is the extent of the occurrence and distribution of Enset disease in unaddressed enset growing areas of Ethiopia in the inception phase?
2. Can we get enset bacterial wilt disease resistant/tolerant clones that combine higher yield and acceptable cooking quality?
3. Can we get effective potential bio-agents against at field condition that is able to treat the disease?
4. What are the most effective tools for early detection and management of Enset disease management?
5. How is the epidemiology of enset bacterial wilt influenced and human activities including farming practices (e.g traditional enset processing tools)?
6. What existing and novel community organizational and administrative structures could be deployed and enset bacterial wilt alert (early warning and action) system put in place to enhance community action and control the disease nationwide?

## Development Partnerships

*List the partners who will be active, describe the contribution that they will make and how Africa RISING will support / backstop this with the research proposed. Also consider the comparative advantage offered by your partnerships. Make sure that you carefully consider roles and responsibilities of all partners.*

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| --- | --- | --- | --- | --- |
| No. | List of Partners | Partners Responsibilities | *Africa RISING support* | *Partnerships comparative advantage* |
| 1 | Wachemo University | * Conducting Research * Screening and Multiplication of Disease Resistant clones * Provide Training to experts and DAS | * Technical Support and Fund | * Wachemo university found in one the Africa RISING Sites * Already Started Enset Research |
| 2 | Areka Research Canter | * Technical Support * Identifying Resistant Clones | * Technical Support and Fund | * Coordinating National Enset Research |
| 3 | Hadiya Zone Agriculture Depart | * Facilitating, Coordinating and mobilizing woreda * Establish and Lead Enset bacterial wilt management task Force | * Financial and Material |  |
| 4 | Biodiversity Institute | * Collecting and Provide Genetic Material | - | * Collecting Enset Genes and * Undertaking Enset Research in Southern Ethiopia |
| 5 | Ethiopian Institute of Agriculture | * Conduct Research | - | * Conducting research in collaboration with International Institute of Tropical Agriculture (IITA, Kenya). * Bio-sciences eastern and central africa International Livestock Research Institute (BecA-ILRI). |

## Impact Pathway

*Ensure that the contribution to FtF goals (e.g. improved food security, better health and nutrition, inclusive agriculture sector growth) are stated*

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| --- | --- | --- | --- |
| Activities | Outputs | Outcomes | Impacts |
| * Situation analysis   + Baseline survey | * Intensity & distribution of Enset Disease * Bio-physical & socio-economic factors influencing disease management | * Food & income Security * Reduce erosion & enhance environmental protection | * Improve enset production & productivity * Improve Livelihood |
| * Microbial agent studies | Bio-control agents & useful endophytes |  | * Improve enset production & productivity * Improve Livelihood |
| * Pathogen studies   + Breeding   + Diagnostics   + Epidemiology | * Understanding pathogen diversity | Reduce disease | * Improve enset production & productivity * Improve Livelihood |
| * Early elimination of diseased plants | Reduce disease | * Improve enset production & productivity * Improve Livelihood |
| * Identify mechanisms& factors affecting disease dissemination | Reduce disease | * Improve enset production & productivity * Improve Livelihood |
| * Enset diversity | * Resistance source | Reduce disease | * Improve enset production & productivity * Improve Livelihood |
| * New tools, knowledge and techniques for Enset Disease management | * Stronger community mechanisms for managing | * Integrated Enset Disease management | * Improve enset production & productivity * Improve Livelihood |

## Targets / Zone of Influence

*How many potential beneficiaries are out there? How many do you hope to materially impact on? Where are they?*

The major enset growing areas of sothern Ethiopia; eight Zones namely Guragie, Siltie, Dawuro, Sidama, Wolayita, Gedeo, Hadyia and Kembata-Tembaro zones will directly benefitted. It could also be extended to other potential enset producing areas such as South West and Oromiya zones, Ethiopia. Specifically, in Hadia Zone the potential beneficiaries are approximately 87,038.

## Arrangements Required for Monitoring and Evaluation

*How will you generate and present the evidence that your partnership has been successful?*

## Communications and Knowledge Management / Transfer

*What arrangements will you put in place to communicate your activities and their benefits? What knowledge specific products and activities will you need to implement to support this.*

Field day, poster, video, Farm radio (community radio), cross-learning, Publication, Policy (regional and National Levelc), Partnership development, Ip meetings (kebele, woreda, etc),